

WHAT IS CLAIMED IS:

1. An image processing device for processing an image data of an inputted image and extracting semantic information contained in the image data, the image processing device comprising:

a first unit having a plurality of pattern groups that contain at least one reference pattern belonging to a predetermined class;

a second unit for extracting the image data of a region that is defined corresponding to a predetermined position inside the inputted image, checking the image data with each of the reference patterns contained in each of the pattern groups, and evaluating a similarity between each of the reference patterns and the image data; and

a third unit for performing a predetermined calculation on each evaluation value of the similarity to determine at least one evaluation value, identifying the class of the reference pattern corresponding to the determined evaluation value, and making the evaluation value and the identified class of said reference pattern correspond to the predetermined position.

2. The image processing device according to claim 1,

wherein the evaluation value and the class are identified for each of a plurality of the predetermined positions of the inputted image, and

the evaluation value and the class are made to correspond to the plurality of the predetermined positions to thereby create a distribution map.

3. The image processing device according to claim 2, further comprising a fourth unit for creating a one-dimensional data row from the distribution map,

wherein said fourth unit performs a process of adding the number of predetermined positions belonging to the same class in a predetermined direction.

4. The image processing device according to claim 2, further comprising a fifth unit for creating a one-dimensional data row from the distribution map,

wherein said fifth unit performs a process of adding the evaluation value that corresponds to the predetermined position belonging to the same class in a predetermined direction.

5. The image processing device according to claim 1,

wherein the plurality of the pattern groups are categorized in at least two categories, each of the pattern groups that belongs to a first category serves to identify the evaluation value and the class at the predetermined position of the inputted image, and each of the pattern groups that belongs to a second category is given a meaning that, when each of the pattern groups is selected corresponding to the

predetermined position of the inputted image, the reference pattern does not exist for the position.

6. The image processing device according to claim 1, further comprising a sixth unit for expressing a vector of the image data of the region that is defined corresponding to the predetermined position inside the inputted image,

wherein said second unit retains each of the reference patterns as a vector and checks this vector with the vector of the image data to evaluate the similarity.

7. An image processing method for processing an image data of an inputted image and extracting semantic information contained in the image data, the image processing method comprising:

a first step of extracting the image data of a region that is defined corresponding to a predetermined position inside the inputted image;

a second step of storing a plurality of pattern groups that contain at least one reference pattern belonging to a predetermined class, checking the image data with each of the reference patterns contained in each of the pattern groups, and evaluating a similarity between each of the reference patterns and the image data; and

a third step of performing a predetermined calculation on each evaluation value of the similarity to determine at least one evaluation value,

identifying the class of the reference pattern corresponding to the determined evaluation value, and making the evaluation value and the identified class of the reference pattern correspond to the predetermined position.

8. The image processing method according to the claim 7,

wherein the evaluation value and the class are identified for each of a plurality of the predetermined positions of the inputted image, and the evaluation value and the class are made to correspond to the plurality of the predetermined positions to thereby create a distribution map.

9. The image processing method according to claim 8, further comprising a fourth step for creating a one-dimensional data row from the distribution map,

wherein said fourth step performs a process of adding the number of predetermined positions belonging to the same class in a predetermined direction.

10. The image processing method according to claim 8, further comprising a fifth step for creating a one-dimensional data row from the distribution map,

wherein said fifth step performs a process of adding the evaluation value that corresponds to the predetermined position belonging to the same class in a predetermined direction.

11. The image processing method according to claim 7,

wherein the plurality of the pattern groups are categorized in at least two categories, each of the pattern groups that belongs to a first category serves to identify the evaluation value and the class at the predetermined position of the inputted image, and each of the pattern groups that belongs to a second category is given a meaning that, when each of the pattern groups is selected corresponding to the predetermined position of the inputted image, the reference pattern does not exist for the position.

12. The image processing method according to claim 7, further comprising a sixth step for expressing a vector of the image data of the region that is defined corresponding to the predetermined position inside the inputted image,

wherein said second step retains each of the reference patterns as a vector and checks this vector with the vector of the image data to evaluate the similarity.

13. A computer program product for image processing comprising, when processing an image data of an inputted image and extracting semantic information that is contained in the image data:

a first program code means for extracting the image data from a region that is defined

corresponding to a predetermined position inside the inputted image;

a second program code means for storing a plurality of pattern groups that contain at least one reference pattern belonging to a predetermined class, checking the image data with each of the reference patterns contained in each of the pattern groups, and evaluating similarity between each of the reference patterns and the image data; and

a third program code means for performing a predetermined calculation on each evaluation value of the similarity to determine at least one evaluation value, identifying the class of the reference pattern corresponding to the determined evaluation value, and making the evaluation value and the identified class of the reference pattern correspond to the predetermined position.

14. A computer readable storage medium for storing a computer program product for image processing,

wherein said computer program product for image processing comprises, when processing an image data of an inputted image and extracting semantic information that is contained in the image data:

a first program code means for extracting the image data from a region that is defined corresponding to a predetermined position inside the inputted image;

a second program code means for storing a plurality of pattern groups that contain at least one reference pattern belonging to a predetermined class, checking the image data with each of the reference patterns contained in each of the pattern groups, and evaluating similarity between each of the reference patterns and the image data; and

a third program code means for performing a predetermined calculation on each evaluation value of the similarity to determine at least one evaluation value, identifying the class of the reference pattern corresponding to the determined evaluation value, and making the evaluation value and the identified class of the reference pattern correspond to the predetermined position.